REMARKS

Claims 1, 4, 6 and 19 are being amended in light of the Examiner's comments, and applicant trusts that the objection to the claims and the rejection under 35 U.S.C. § 112 will be withdrawn.

The rejections based upon Clark et al. (U.S. 6,230,563) and Seshia et al. (U.S. 6,250,156) appear to be based upon a misunderstanding of the invention and/or the references on the part of the Examiner. In the references, the masses are coupled mechanically, whereas in applicant's invention, they are coupled electrostatically. That is a fundamental and important difference.

Referring to Figure 1 of the application drawings, for example, the Examiner will note that there is no mechanical connection or coupling between masses 101 and 102. However, the two masses are coupled together in the x-direction by the electrostatic forces which are developed between plates 103 and 104 when a voltage is applied between them. The strength of that force is a function of the distance between the plates and, hence, the relative positions of the masses, increasing as the masses move closer together and decreasing as they move farther apart.

In Clark et al. and Seshia et al., the coupling between the masses is mechanical, not electrostatic. Thus in Clark et al., for example, the elements which Examiner has referred to as no means for coupling the masses together through electrostatic forces (elements 104 - 111) are actually flexible beams in the suspension system (Col. line 55 et seq), which flex or bend to allow the masses to move toward and away from each other (see Fig. 5). In Seshia et al., elements 214 and 216 are coupling springs (Col. 14, line 63 et seq.), and elements 216 are flexible beams in the suspension system (Col. 14, line 35 et seq.).

Claim 1 and the claims depending therefrom (Claims 2 - 11) distinguish over Clarke et al. and Seshia et al. in calling for means for coupling the masses together through electrostatic forces which are a function of the relative positions of the masses, and Claims 12 - 20 distinguish over those references in calling for first and second masses which are coupled together electrostatically and mounted in a manner permitting anti-phase dithering motion along a first axis and differential motion along a second axis in response to a Coriolis force.

Without masses which are coupled together electrostatically or means for coupling the masses together electrostatically, Clark et al. and Seshia et al. do not

anticipate, and the rejection of Claims 1 - 5 and 7 - 20 under 35 U.S.C. §102 is clearly erroneous.

The rejection of Claim 6 under 35 U.S.C. §102 as being unpatentable over Buestgens (U.S. 5,895,850) in combination with Clarke et al. and Seshia et al. is likewise erroneous. Claim 6 depends from Claim 1 and defines the means for coupling the masses together as including a third mass which is coupled electrostatically between the first and second masses. Buestgens is cited as showing the use of a third mass 3, but the coupling between that mass and the others is by resonating springs 4, 5, which once again is mechanical, not electrostatic.

In order to more fully round out the protection to which applicant is believed to be entitled, new Claims 21 - 27 are being added.

Claim 21 is directed to a micromachined rate sensor, comprising: first and second masses mounted in a manner permitting anti-phase dithering motion along a first axis and movement in opposite directions along a second axis in response to a Coriolis force produced by rotation about a third axis, and a plurality of capacitive coupling plates attached to the masses and interleaved along the first axis to provide electrostatic coupling between the masses when a voltage is applied to the plates.

Claim 22 depends from Claim 21 and further calls for additional coupling plates which are attached to the masses and interleaved along the second axis to provide electrostatic coupling between the masses along the second axis when a voltage is applied thereto.

Claim 23 is directed to a micromachined rate sensor having first and second masses mounted in a manner permitting anti-phase dithering motion along a first axis and movement in opposite directions along a second axis in response to a Coriolis force produced by rotation about a third axis, and capacitive coupling plates attached to the masses and disposed in facing relation to each other along the first axis to provide electrostatic coupling between the masses when a voltage is applied to the plates.

Claim 24 is directed to a micromachined rate sensor, having: first and second masses mounted in a manner permitting anti-phase dithering motion along a first axis and movement in opposite directions along a second axis in response to a Coriolis force produced by rotation about a third axis, a third mass mounted between the first and second masses in a manner permitting movement along the first axis, and capacitive coupling plates attached to the masses and disposed in facing relation to each other along the first axis to provide electrostatic coupling between the first and third masses and between the second and third masses when a voltage is applied to the plates.

Claim 25 depends from Claim 24 and further calls for a sensing mass connected to the first and second masses for movement along the second axis with the first and second masses without impairing the motion of the first and second masses along the first axis.

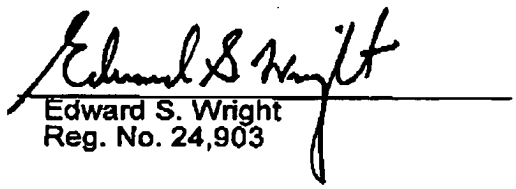
Claim 26 is depends from Claim 25 and defines the sensing mass as comprising a rectangular frame which surrounds and is coplanar with the first and second masses.

Claim 27 is directed to a micromachined rate sensor, having: first and second masses mounted in a manner permitting anti-phase dithering motion along a first axis and movement in opposite directions along a second axis in response to a Coriolis force produced by rotation about a third axis, capacitive coupling plates attached to the masses and disposed in facing relation to each other along the first axis to provide electrostatic coupling between the masses when a voltage is applied thereto, a sensing mass in the form of a rectangular frame which surrounds and is coplanar with the masses and is mounted in a manner preventing motion along the first and second axes while permitting rotation about the third axis, and capacitive coupling plates attached to the first and second masses and to the sensing mass disposed in facing relation to each other along the second axis to provide electrostatic coupling between the first and second masses and the sensing mass when a voltage is applied thereto.

For the reasons discussed above, Claims 1 - 27 are all believed to be directed to patentable subject matter, and with this amendment, the application should be in condition for allowance.

The Commissioner is authorized to charge any fees required in this matter, including extension fees, or to credit any overpayment to Deposit Account 50-2975, Order No. A-71587.

Respectfully submitted,



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